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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,029	12/11/2003	Haewon Uhm	FDN-2821	8739

7590 07/07/2006

Attn: William J. Davis, Esq.
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EXAMINER	
CORDRAY, DENNIS R	
ART UNIT	**PAPER NUMBER**
1731	

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/734,029	UHM ET AL.	
	Examiner	Art Unit	
	Dennis Cordray	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 and 9-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mirous (5518586) in view of Sage (6228281).

Mirous discloses a wet-laid process for forming a glass fiber mat (col 3, line 64 to col 4, line 24; col 5, lines 39-41) comprising

- adding glass fiber bundles to an aqueous dispersant medium and forming an aqueous "white water" slurry of fibers under agitation that can contain conventional additives, such as a lubricant and a dispersant (col 3, line 64 to col 4, line 14). The dispersant contains hydroxyethylcellulose, which is an emulsifier (if evidence is needed, see Vanderhoff et al, 5106903, col 5, lines 16-24).
- agitating the slurry to cause separation of the fibers in to a uniform disperaion of fibers (col 4, lines 8-11),
- removing the fibers from the water by collecting them on a screen to form a mat (col 4, lines 15-21),
- drying by means of vacuum (col 4, lines 18-21),
- applying a binder composition to the dewatered mat (col 4, lines 22-24),

- curing the binder composition at a temperature of at least 200 °C (col 5, lines 39-41).

Mirous teaches that the most widely used binder is urea-formaldehyde resin (col 2, lines 3-5). Example 1 discloses a urea-formaldehyde binder (col 5, line 58 to col 6, line 4). Mirous also teaches that surfactants are typically added to the white water to aid in dispersion of the glass fibers. Since emulsifiers are surfactants (see Tiesler et al, col 1, lines 54-56), the surfactant of Mirous can serve the purpose of an emulsifier in aiding dispersion of the glass fibers. The surfactant or the dispersant (hydroxyethylcellulose) disclosed by Mirous, when added to the slurry and the slurry agitated, is capable of functioning as an emulsifier and causing the entrainment of air because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Mirous does not disclose the composition or properties of the lubricant. Mirous also does not disclose that the sized fibers have a loss on ignition between about 0.01% and about 0.75%.

Sage discloses treating glass fibers with a sizing composition comprising a cationic lubricant that can be a partially amidated polyalkylene imine such as a reaction

product of C2 to C18 fatty acids with a polyethylene imine having a molecular weight from about 800 to about 50,000. The product has a residual amine value from about 200 to about 800 (abstract and col 4, lines 15-22). Sage also discloses that a suitable material is Emery 6760T, which is cited in the instant disclosure as having the required properties (col 4, lines 28-33). Sage further discloses that the amount of cationic lubricant is present in an amount from about 0.01% to about 0.1% by weight of the composition (col 4, lines 39-43). Sage teaches that the sizing composition helps prevent breakage of fibers during handling and reduces the fuzz on the surface of the fibers (col 1, lines 58-64; col 2, lines 10-13). Sage also teaches that emulsifiers are typically added to sizing compositions (col 2, lines 44-55), thus emulsifiers can also be present in the white water from the sizing composition. The sized fibers disclosed by Sage can have the claimed LOI because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

The art of Mirous et al, Sage and the instant invention are analogous as they pertain to the art of treating glass fibers. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the claimed sizing composition in the mat of Mirous et al in view of Sage to reduce the breakage of fibers and creation of fuzz on the fiber surface.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mirous (5518586) in view of Sage (6228281) and further in view of Jaffee et al (6432482).

Mirous and Sage do not disclose that the drying and binder application steps occur on adjacent endless moving conveyers.

Jaffee et al discloses a conventional process for continuously forming multiple layer nonwoven glass fiber mats (col 3, lines 49) comprising

(a) forming and drying a mat on a permeable moving belt (inherently endless) (col 4, lines 5-19),

(b) transferring the dried mat to a second moving screen or belt (inherently endless) where a binding resin is applied (col 4, lines 20-24).

Jaffee depicts the process in Figure 1, where the drying portion of the apparatus is clearly located adjacent to the binding portion of the apparatus.

The art of Mirous, Sage, Jaffee et al and the instant invention are analogous as they pertain to making nonwoven glass fiber mats. It would have been obvious to one of ordinary skill in the art at the time of the invention to use adjacent endless belts to dry and apply binder to the glass fiber mats of Mirous et al in view of Sage and further in view of Jaffee et al as a conventional process for making the mats.

Response to Arguments

Applicant's arguments filed 5/15/2006 have been fully considered but they are not persuasive.

Applicant argues on p 7 that the Mirous reference modifies the urea-formaldehyde resin binder by adding a water insoluble anionic phosphate ester to the resin. The anionic phosphate ester negates the cationic charge of the hydroxyethylcellulose dispersant that comes into contact with the resin on the glass fibers. Applicant further argues that the instant invention does not use a cationic hydroxyethylcellulose and therefore does not require negation of the cationic charge with the anionic phosphate ester.

The claimed binding resin is a thermosetting resin, and specifically a urea-formaldehyde resin, as recited in Claim 9. A hydroxyethylcellulose dispersant/emulsifier and an anionic phosphate ester are not claimed. In fact no specific dispersant or emulsifier is claimed, therefore any dispersant or emulsifier can apparently be used, including hydroxyethylcellulose (if evidence is needed that hydroxyethylcellulose is an emulsifier, see Vanderhoff et al, 5106903, col 5, lines 16-24).

The language of the instant claims is open in that the process uses the word "comprising." Process steps and additives other than those recited are not excluded, thus a binder composition containing an anionic species to negate the cationic charge of the hydroxyethylcellulose (such as an anionic phosphate ester) is an embodiment of the instant invention as claimed. Mirous uses a urea-formaldehyde resin as a binder that is cured at a temperature of at least 200 °C (col 5, lines 1-42). Mirous adds an an anionic phosphate ester to the binder as a charge modifier for the hydroxyethylcellulose dispersant/emulsifier. Example 1 discloses a urea-formaldehyde binder (col 5, line 58 to col 6, line 4).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DRC

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